

CLAIMS:

1. A one-piece golf ball formed by vulcanization from a rubber composition composed of 100 parts by weight of rubber
5 base material, 10 to 40 parts by weight of unsaturated carboxylic acid, 10 to 60 parts by weight of metal oxide, and 0.9 to 5 parts by weight of organic peroxide, said rubber base material containing 60 to 100 % by weight based on the weight of a polybutadiene which is synthesized with a
10 catalyst of rare earth element, contains no less than 60% of cis-1,4-linkage, and has a Mooney viscosity ($ML_{1+4}(100^{\circ}C)$) no less than 40.
2. The one-piece golf ball of claim 1, wherein the
15 polybutadiene is one which has a molecular weight distribution M_w/M_n of 2.0 to 8.0 (where M_w stands for weight-average molecular weight and M_n stands for number-average molecular weight).
- 20 3. The one-piece golf ball of claim 1, wherein the polybutadiene is one which is obtained by synthesis with an Nd-based catalyst and subsequent reaction with a terminal modifier.
- 25 4. The one-piece golf ball of claim 1, wherein the rubber base material contains, in addition to the polybutadiene, no more than 40 % by weight of a second polybutadiene which is synthesized with a catalyst of Group VIII element and has a Mooney viscosity ($ML_{1+4}(100^{\circ}C)$) less than 50.
30
5. The one-piece golf ball of claim 4, wherein the second polybutadiene is one which has a molecular weight distribution M_w/M_n of 3.0 to 6.0 and a solution viscosity no less than 100 mPa's and no more than 500 mPa's in toluene
35 (5 % by weight) at 25°C.

6. The one-piece golf ball of claim 1, wherein the rubber base material contains (based on 100 parts by weight) 0.2 to 5 parts by weight of organic sulfur compound.

5 7. The one-piece golf ball of claim 1, wherein the rubber composition contains two or more kinds of organic peroxide, the one with a shortest half-life (at 155°C) being designated as (a) and the other with a longest half-life being
10 designated as (b), such that the ratio b_t/a_t is no less than 7 and no more than 20, where a_t denotes the half-life of (a) and the b_t denotes the half-life of (b).